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HEMPHILL'S CATALOGUE,  
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OF THE  
LAND & FRESHWATER SHELLS

OF  
UTAH.

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## NOTE

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I invite the especial attention of Naturalists, Conchologists, &c, to this remarkable series of Land Shells, collected by me during last summer and fall in the canyons of the Wassatch Mt's, Utah.

This collection is certainly one of deep scientific interest and furnishes one of the best examples of evolution that we have ever met with, for it closely unites what has been considered heretofore, as five good and distinct specie .

For the purpose of showing their close relationship I have arranged them in suites to show their full range of variation, in form, size, sculpture and color.

I offer the following testimonials from our highest conchological authorities as evidence of their scientific value.

Without exception your Utah suite is the most interesting I ever studied, and the most instructive.

W. G. Binney.

Your suite of Utah *Helices* is deeply interesting. The forms we know as *strigosa*, *Cooperi*, *Idahoensis*, *Hemphilli* and *Haydeni*, are shown by numerous varieties to be intimately connected.

Thos. Bland.

I have examined with care the magnificent suite of land shells collected by you in Utah, and do not hesitate in pronouncing them the most interesting and instructive of any groupe of *Helices* that I have ever been privileged to study.

W. Newcomb. M. D.

H. H.

## LAND SHELLS OF UTAH.

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- |    |   |
|----|---|
| 1  | Zonites arboreus, Say.                            |
| 2  | , chersina,                                       |
| 3  | , Whitneyi, Newc.                                 |
| 4  | Vitrina Pfeifferi, Newc.                          |
| 5  | Patula Cronkheitei, Newc                          |
| 6  | , strigosa, Gld.                                  |
| 7  | ,       , var.                                    |
| 8  | ,       , medium.                                 |
| 9  | ,       , small.                                  |
| 10 | ,       , bandless, horn-color, large.            |
| 11 | ,       ,       ,       , medium.                 |
| 12 | ,       ,       ,       , very small.             |
| 13 | ,       , albino, large.                          |
| 14 | ,       ,       , medium.                         |
| 15 | ,       ,       , very small.                     |
|    | Intermediate forms connecting strigosa & Cooperi. |
| 16 | ,       , large, banded.                          |
| 17 | ,       , medium.                                 |
| 18 | ,       , diaphanous, banded, horn-color.         |
| 19 | ,       , var                                     |
| 20 | ,       , small, variable.                        |
| 21 | ,       ,       , albino, rough striæ.            |
| 22 | Patula Cooperi, Binn- Elevated.                   |
| 23 | ,       , medium.                                 |
| 24 | ,       , horn-color.                             |
| 25 | ,       , var.                                    |
| 26 | ,       , small.                                  |
| 27 | ,       , albino, rough striæ.                    |
| 28 | ,       , very small.                             |



Intermediate forms connecting strigosa & Cooperi with Hemphilli.

- |    |                         |                                     |
|----|-------------------------|-------------------------------------|
| 29 |                         | subangled.                          |
| 30 |                         | dentate.                            |
| 31 | Patula Hemphilli, Newc. | var                                 |
| 32 | , ,                     | banded.                             |
| 33 | , ,                     | small.                              |
|    | , ,                     | passing into Haydeni.               |
| 34 | , ,                     | var Utahensis, keeled, smooth.      |
| 35 | , ,                     | , , small.                          |
| 36 | , ,                     | var Oquirrhensis, revolving ribs.   |
| 37 | , ,                     | , depressed.                        |
| 38 | , ,                     | , small.                            |
| 39 | , Haydeni, Gabb.        |                                     |
| 40 | , ,                     | small.                              |
| 41 | , ,                     | var Gabbiana. Ribs nearly obsolete. |
| 42 | , ,                     | small.                              |

The following varieties of Idahoensis have more than double the number of ribs or plicate striæ than the typical form, and are the most beautifull of our American snails.

- |    |                                       |
|----|---------------------------------------|
| 43 | Patula Idahoensis, var Wassatchensis. |
| 44 | , , , , var.                          |
| 45 | , , , with chestnut bands.            |
| 46 | , , , bandless.                       |
| 47 | , , , depressed,                      |
| 48 | , , , - small.                        |
| 49 | , , , - bandless.                     |
| 50 | , , , - small.                        |
| 51 | , , , , medium banded.                |
| 52 | , , , - bandless.                     |
| 53 | , , , intermediate.                   |
| 54 | , , , , small.                        |
| 55 | , , , elevated.                       |
| 56 | , , , dentate.                        |
| 57 | , , , very small banded.              |
| 58 | , , , , bandless.                     |

- 59 *Patula Idahoentis*, var very elevated, small  
 60 , , , horn-color.  
 61 , , , elevated.  
 62 , , , pupiform  
 63 , , , , var  
 64 , , , dentate.

In the remaining varieties of *Idahoensis* the body of the shell is clouded with dark and light chestnut, with a single, broad, revolving white band.

- 65 *Patula Idahoensis*, var. depressed, variable.  
 66 , , , medium.  
 67 , , , elevated.  
 68 , , , var.  
 69 , , , dentate.  
 70 *Helix Ingersolli*, Bld.  
 71 , *costata*, Say.  
 72 *Cionella subcylindrica*, Linn.  
 73 *Pupa hordeacea*, Gabb.  
 74 , *corpulenta*, Morse.  
 75 , *Arizonensis*, Gabb.  
 76 *Succinea Haydeni*, Binn.  
 77 , *Nuttalli*, ? Lea.  
 78 , *Gabbi*, ? Tryon.  
 79 , *Stretchiana*, ? Bld.  
 80 , *Oregonensis*, Lea.  
 81 , *lineata*, ? var.

Over



## FRESHWATER SHELLS OF UTAH.

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- 82 *Sphærium occidentale*, Prime.
- 83       ,       *dentatum*, Hald.
- 84 *Pisidium occidentale*, Newc.
- 85       ,       *compressum*, Prime.
- 86       ,       *ultramontanum*, Prime.
- 87 *Anodonta Oregonensis*, Lea.
- 88 *Limnæa stagnalis*, Linn.
- 89 *Limnophysa Nuttalliana*, Lea.
- 90       ,       *Haydeni*,
- 91       ,       *caperata*, Say.
- 92       ,       *proxima*, Lea.
- 93       ,       *elodes*, Say.
- 94       ,       *palustris*, Muli.
- 95       ,       *desiduosa*, Say.
- 96 *Physa Sayi*, Tappan.
- 97       ,       *heterostrophe*, Say.
- 98 *Bulinus hypnorum*, Linn.
- 99 *Planorbis trivolv*is, Say.
- 100       ,       *lentus*,       ,
- 101 *Gyraulus vermicularis*, Gld.
- 102 *Valvata sincera*, Say.
- 103 *Bythinella Binneyi*, ? Tryon.
- 104 *Amnicola longinqua*, Gld
- 105 *Fluminicola fusca*, Hald.
- 106 *Pomatiopsis intermedia*, Tryon.
- 107 *Leptolimæa Kirtlandiana*, Lea.



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